FIG. 1

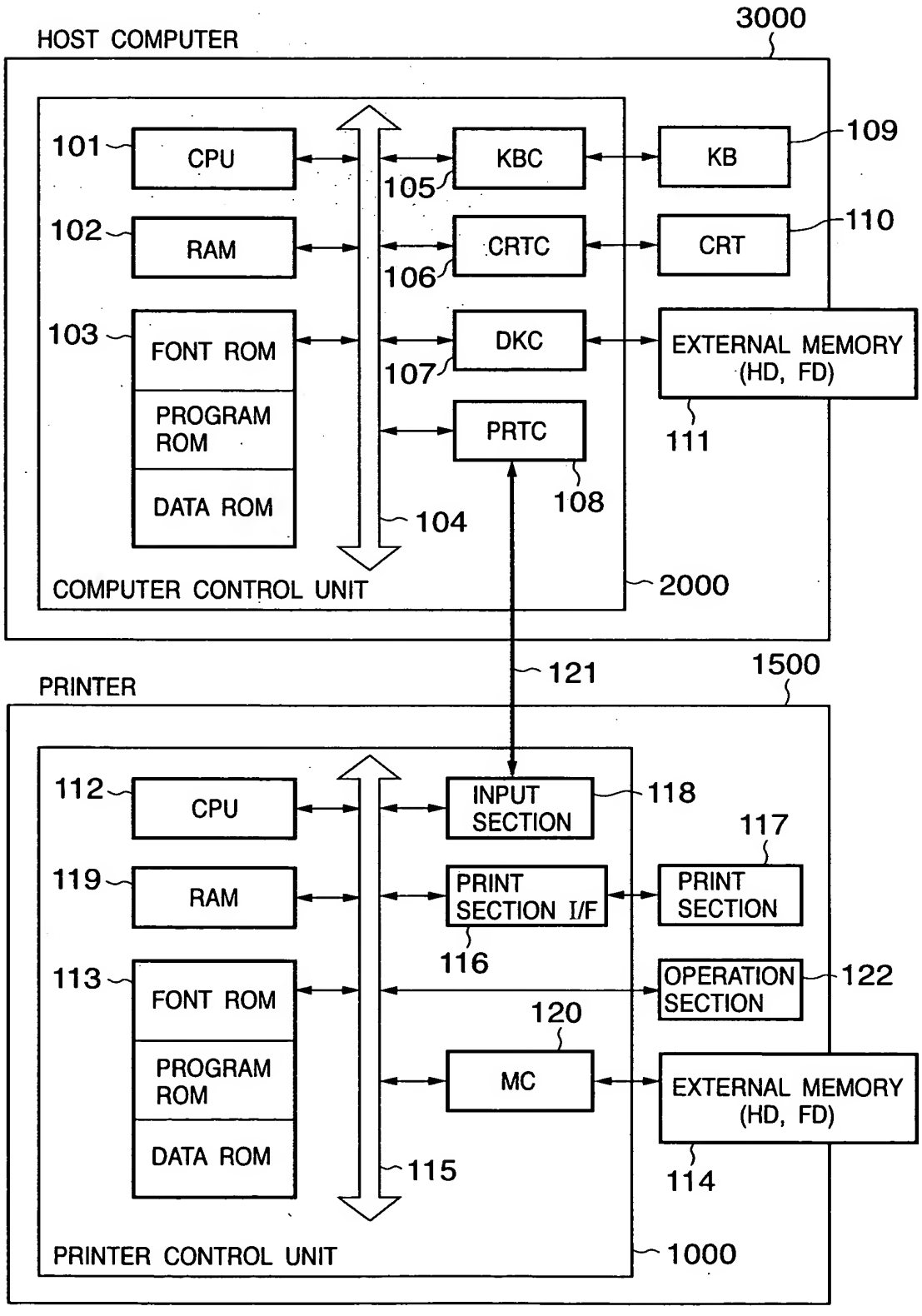

HOST COMPUTER
3000
101
CPU
102
RAM
103
FONT ROM
PROGRAM ROM
DATA ROM
105
KBC
106
CRTC
107
DKC
PRTC
108
104
COMPUTER CONTROL UNIT
2000
KB
109
CRT
110
EXTERNAL MEMORY (HD, FD)
111
121
PRINTER
1500
112
CPU
119
RAM
113
FONT ROM
PROGRAM ROM
DATA ROM
INPUT SECTION
118
117
PRINT SECTION I/F
116
PRINT SECTION
OPERATION SECTION
122
120
MC
115
EXTERNAL MEMORY (HD, FD)
114
PRINTER CONTROL UNIT
1000

FIG. 2

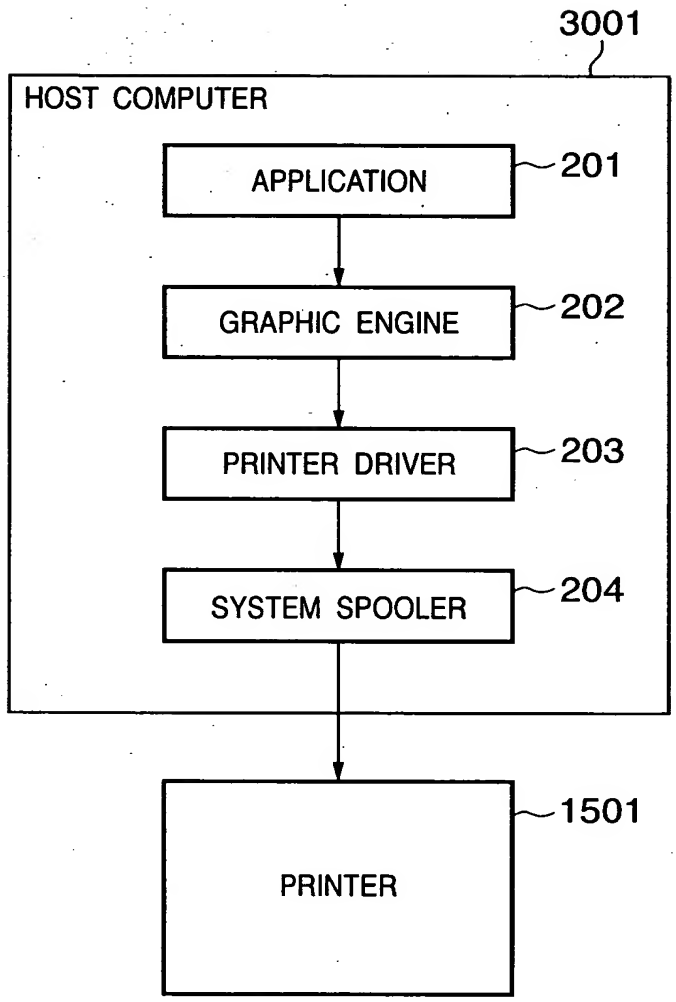

3001
HOST COMPUTER
APPLICATION
201
GRAPHIC ENGINE
202
PRINTER DRIVER
203
SYSTEM SPOOLER
204
PRINTER
1501

FIG. 3

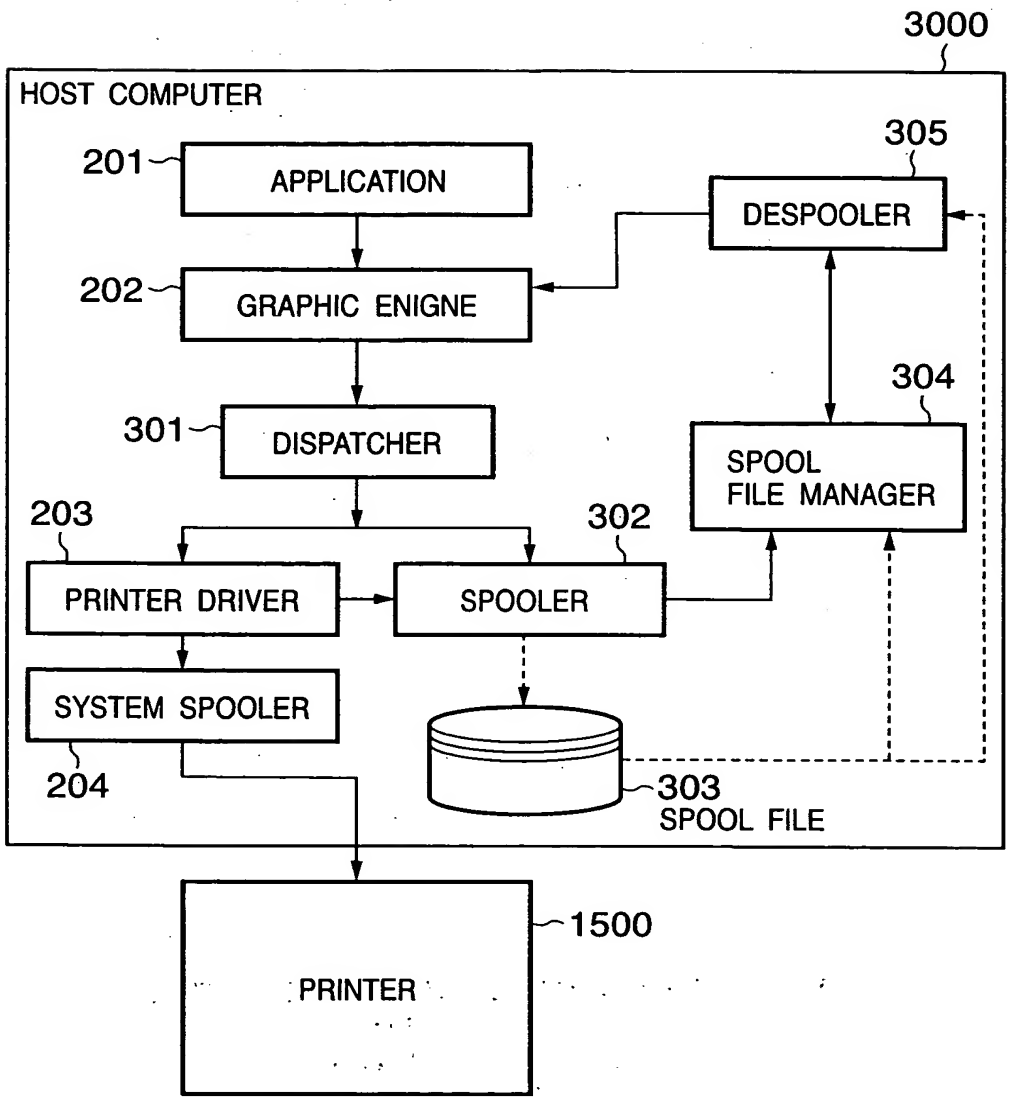

3000
HOST COMPUTER
201
APPLICATION
305
DESPOOLER
202
GRAPHIC ENIGNE
304
301
DISPATCHER
SPOOL
FILE MANAGER
203
302
PRINTER DRIVER
SPOOLER
SYSTEM SPOOLER
204
303
SPOOL FILE
1500
PRINTER

FIG. 4

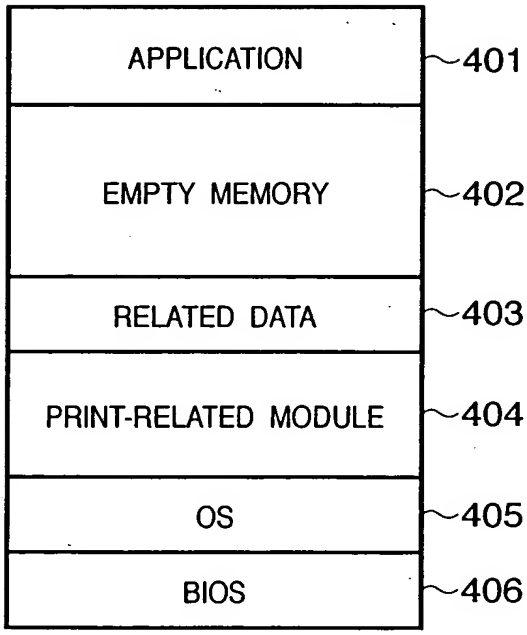

APPLICATION
401
EMPTY MEMORY
402
RELATED DATA
403
PRINT-RELATED MODULE
404
OS
405
BIOS
406

FIG. 5

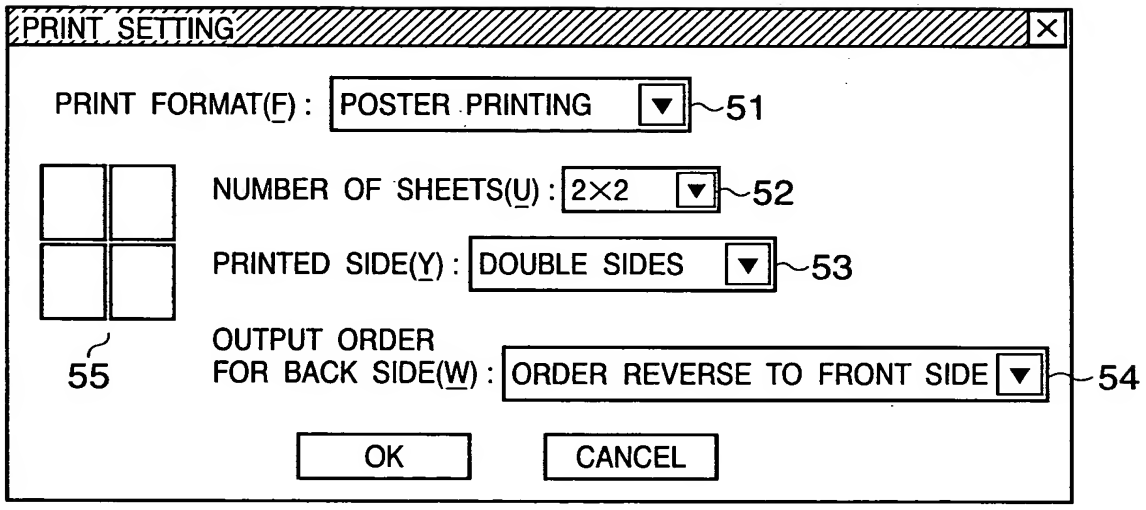

PRINT SETTING
PRINT FORMAT(F) :
POSTER PRINTING
51
NUMBER OF SHEETS(U) :
2×2
52
PRINTED SIDE(Y) :
DOUBLE SIDES
53
55
OUTPUT ORDER
FOR BACK SIDE(W) :
ORDER REVERSE TO FRONT SIDE
54
OK
CANCEL

FIG. 6

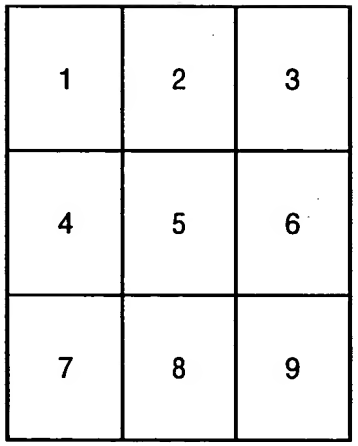

1
2
3
4
5
6
7
8
9
ARRANGED RIGHTWARD
FROM UPPER LEFT,
AND TOP TO BOTTOM

FIG. 7

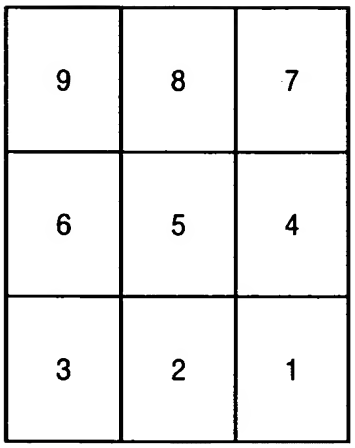

9
8
7
6
5
4
3
2
1
ARRANGED LEFTWARD
FROM LOWER RIGHT,
AND BOTTOM TO TOP

FIG. 8

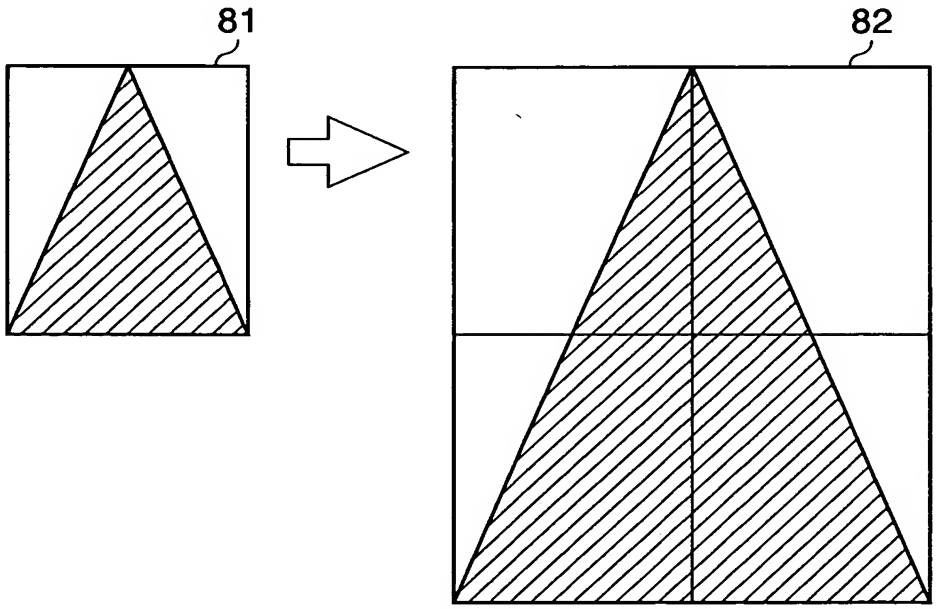


FIG. 9

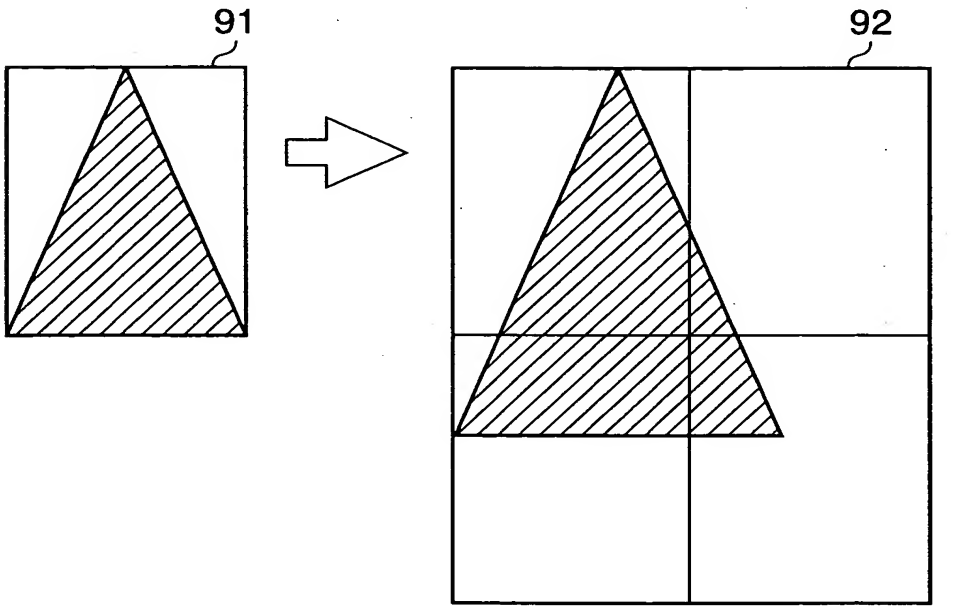
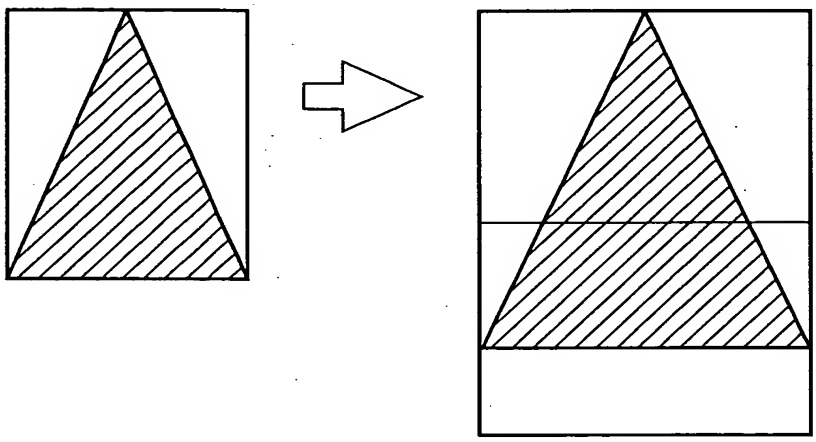


FIG. 10



OUTPUT : 1×2, LANDSCAPE

FIG. 11

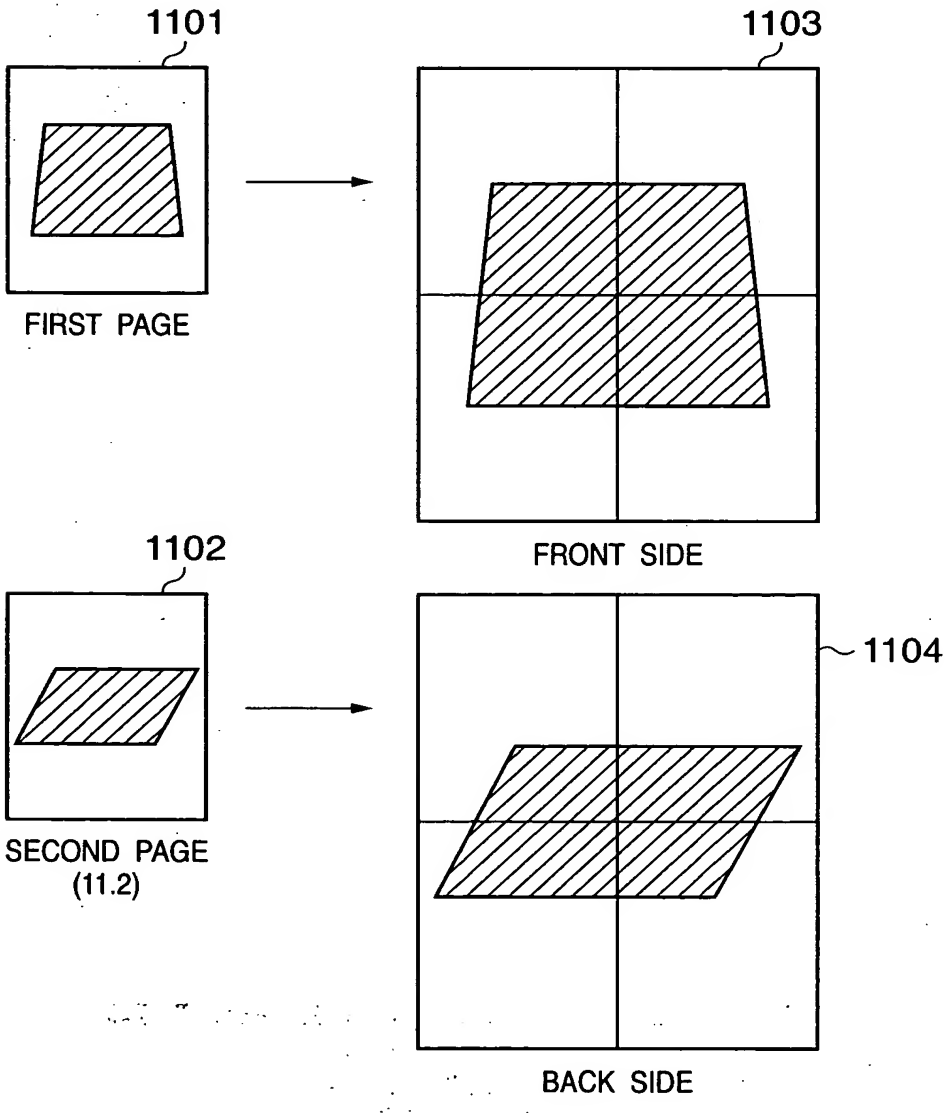

1101
1103
FIRST PAGE
FRONT SIDE
1102
1104
SECOND PAGE
(11.2)
BACK SIDE

FIG. 12

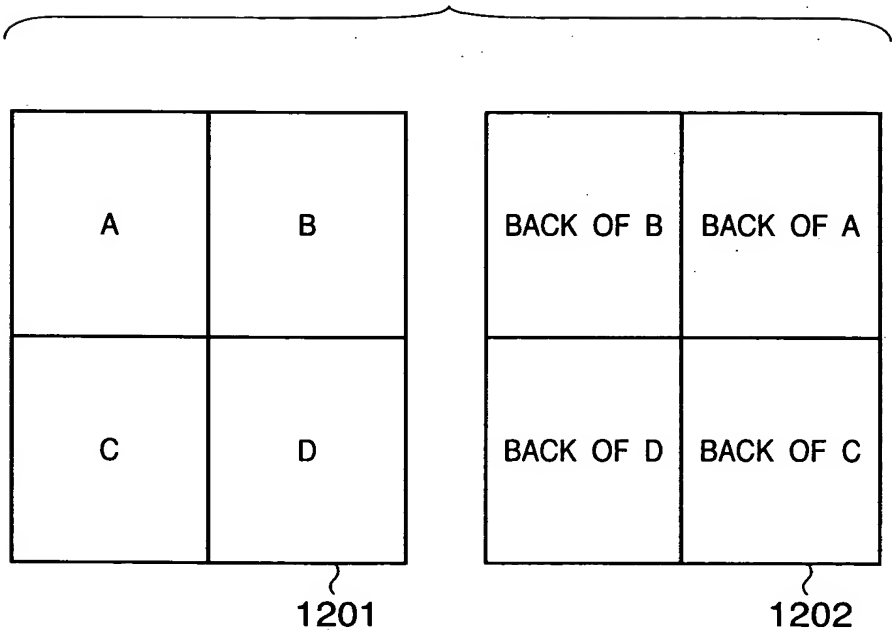


FIG. 13

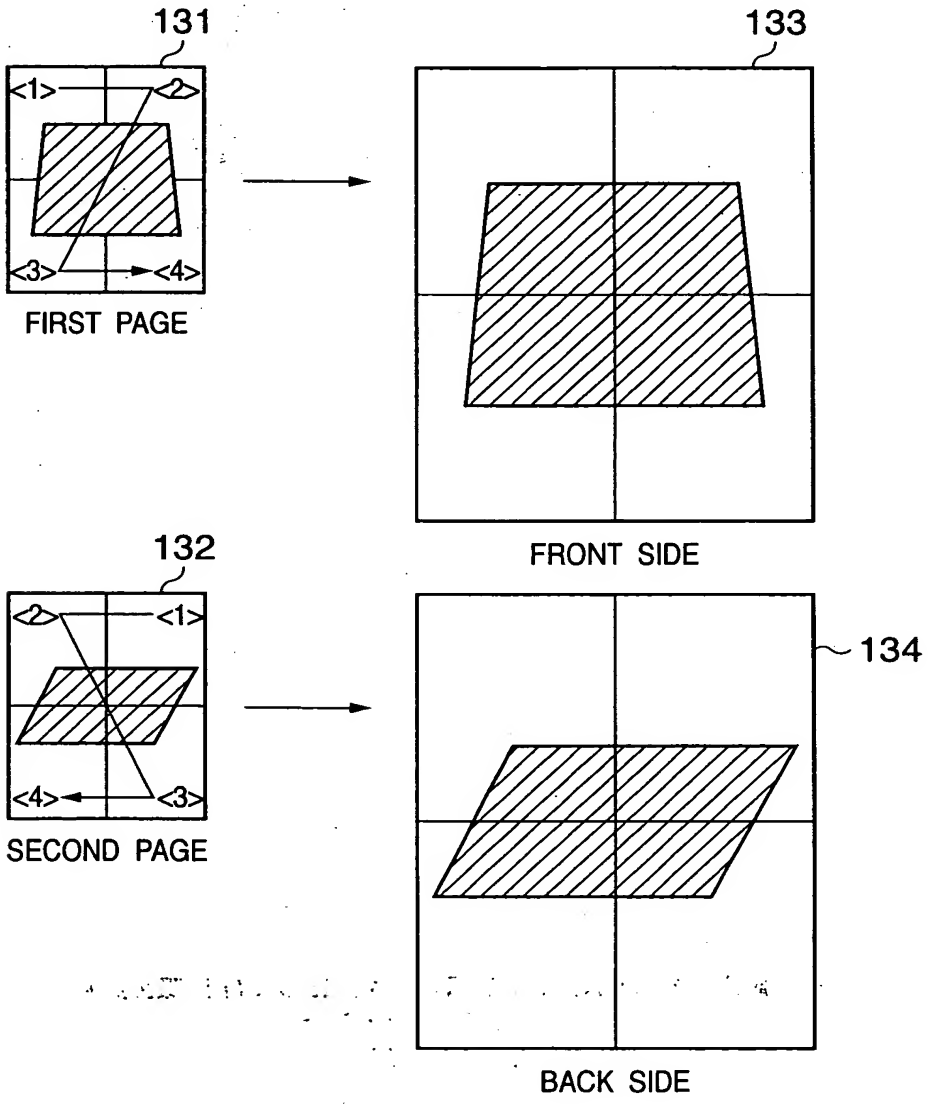

131
133
<1>
<2>
<3>
<4>
FIRST PAGE
FRONT SIDE
132
134
<2>
<1>
<4>
<3>
SECOND PAGE
BACK SIDE

FIG. 14

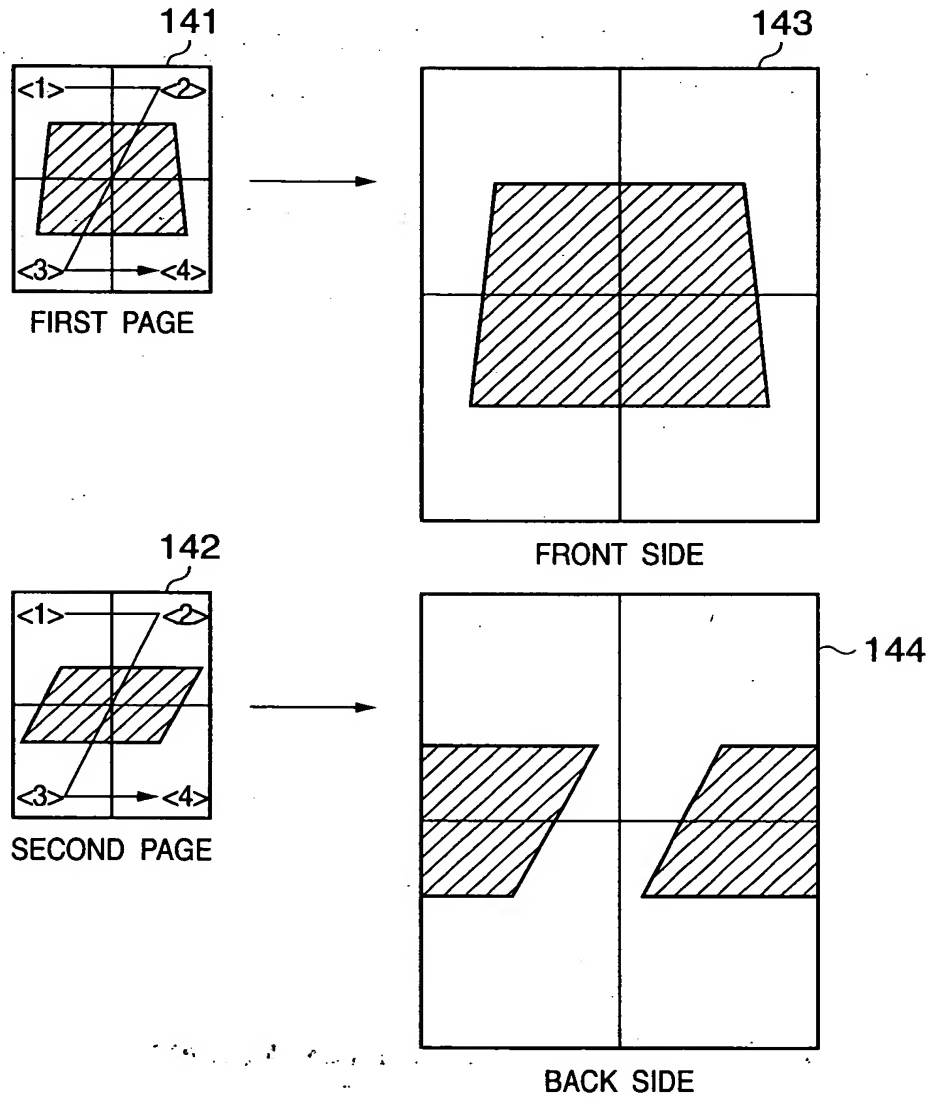

141
<1>
<2>
<3>
<4>
FIRST PAGE
143
FRONT SIDE
142
<1>
<2>
<3>
<4>
SECOND PAGE
144
BACK SIDE

FIG. 15

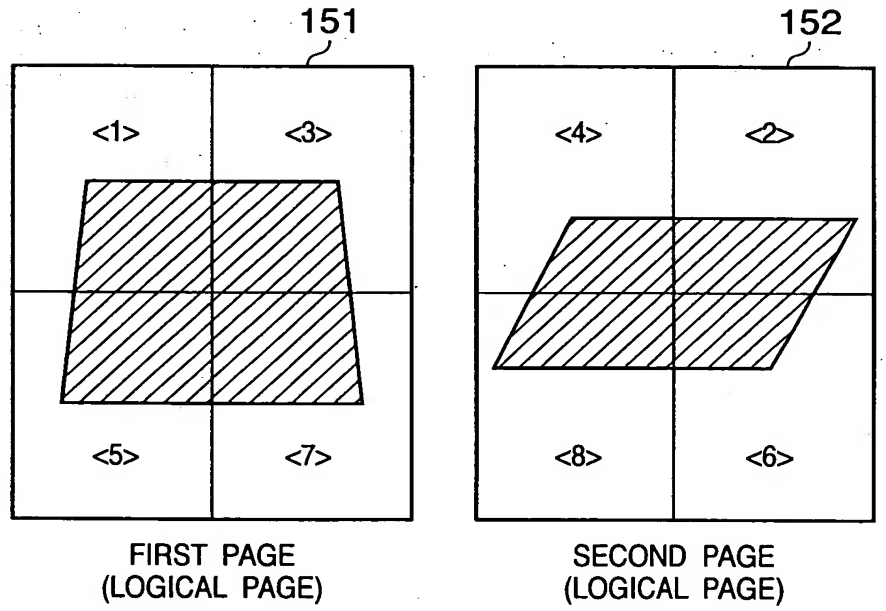

151
152
<1>
<3>
<4>
<2>
<5>
<7>
<8>
<6>
FIRST PAGE
(LOGICAL PAGE)
SECOND PAGE
(LOGICAL PAGE)

FIG. 16

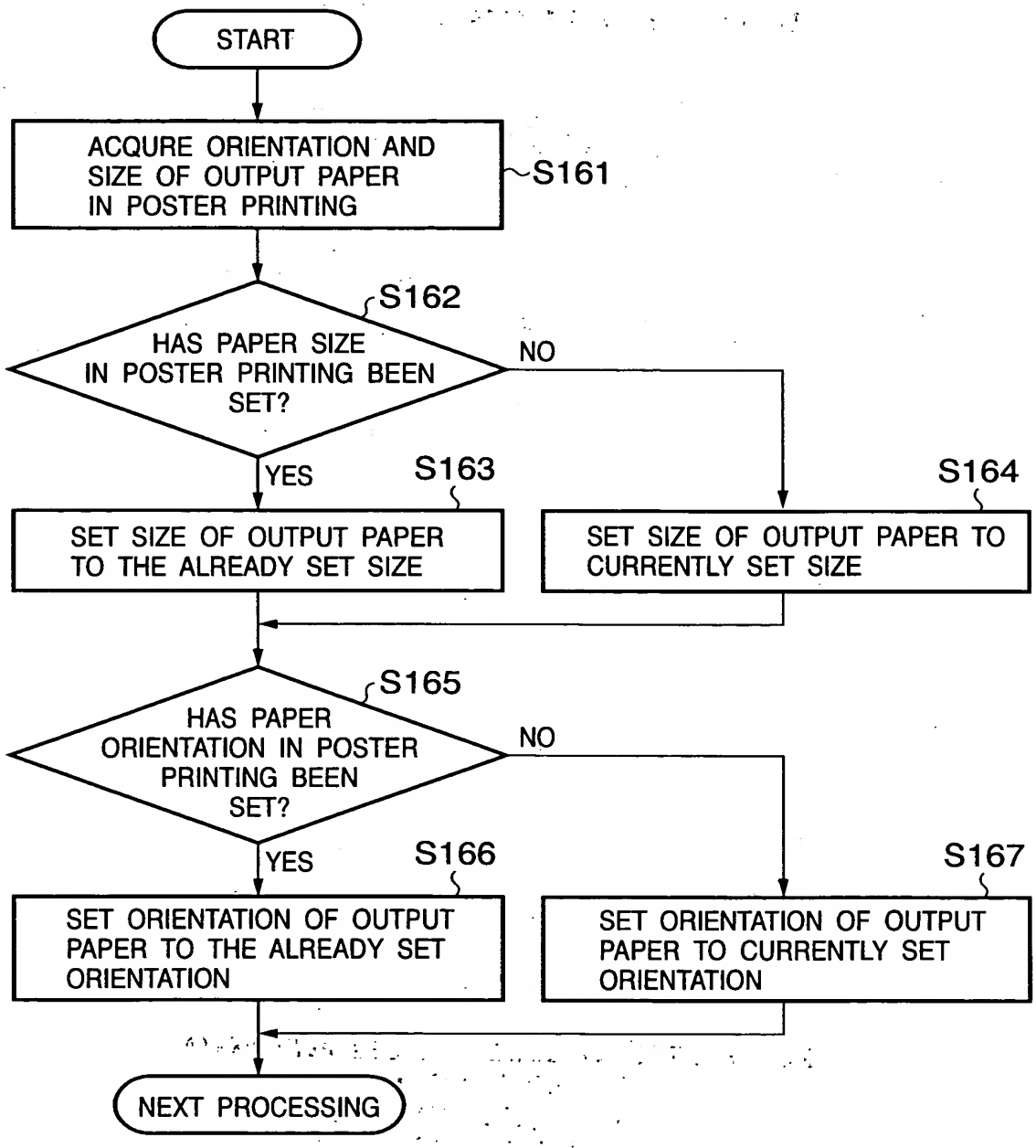

START
ACQURE ORIENTATION AND SIZE OF OUTPUT PAPER IN POSTER PRINTING
S161
S162
HAS PAPER SIZE IN POSTER PRINTING BEEN SET?
NO
YES
S163
S164
SET SIZE OF OUTPUT PAPER TO THE ALREADY SET SIZE
SET SIZE OF OUTPUT PAPER TO CURRENTLY SET SIZE
S165
HAS PAPER ORIENTATION IN POSTER PRINTING BEEN SET?
NO
YES
S166
S167
SET ORIENTATION OF OUTPUT PAPER TO THE ALREADY SET ORIENTATION
SET ORIENTATION OF OUTPUT PAPER TO CURRENTLY SET ORIENTATION
NEXT PROCESSING

FIG. 17

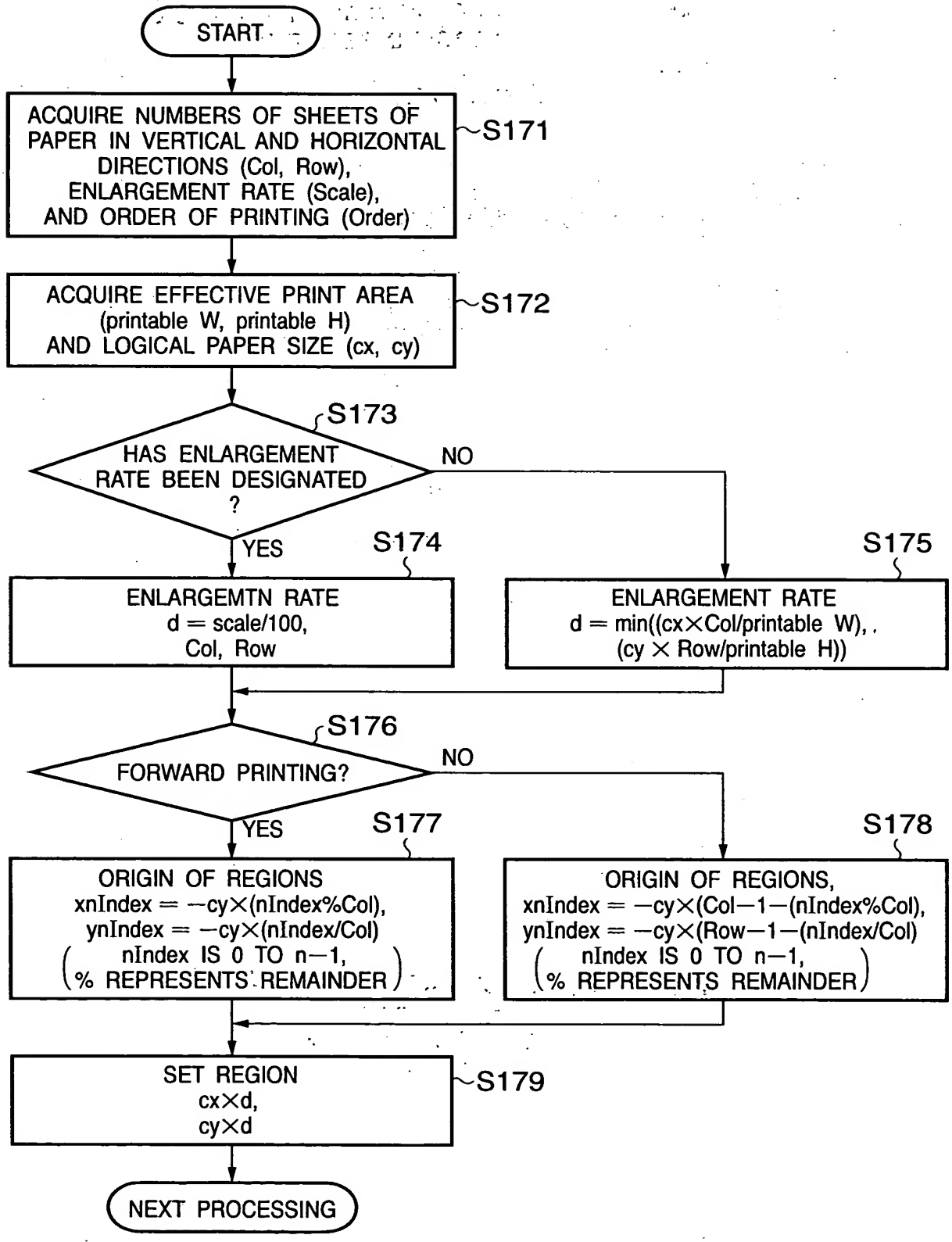

START
ACQUIRE NUMBERS OF SHEETS OF PAPER IN VERTICAL AND HORIZONTAL DIRECTIONS (Col, Row), ENLARGEMENT RATE (Scale), AND ORDER OF PRINTING (Order)
S171
ACQUIRE EFFECTIVE PRINT AREA (printable W, printable H) AND LOGICAL PAPER SIZE (cx, cy)
S172
S173
HAS ENLARGEMENT RATE BEEN DESIGNATED ?
NO
YES
S174
ENLARGEMTN RATE d = scale/100, Col, Row
S175
ENLARGEMENT RATE d = min((cx×Col/printable W), (cy × Row/printable H))
S176
FORWARD PRINTING?
NO
YES
S177
ORIGIN OF REGIONS xnIndex = −cy×(nIndex%Col), ynIndex = −cy×(nIndex/Col) (nIndex IS 0 TO n−1, % REPRESENTS REMAINDER)
S178
ORIGIN OF REGIONS, xnIndex = −cy×(Col−1−(nIndex%Col), ynIndex = −cy×(Row−1−(nIndex/Col) (nIndex IS 0 TO n−1, % REPRESENTS REMAINDER)
SET REGION cx×d, cy×d
S179
NEXT PROCESSING

FIG. 18

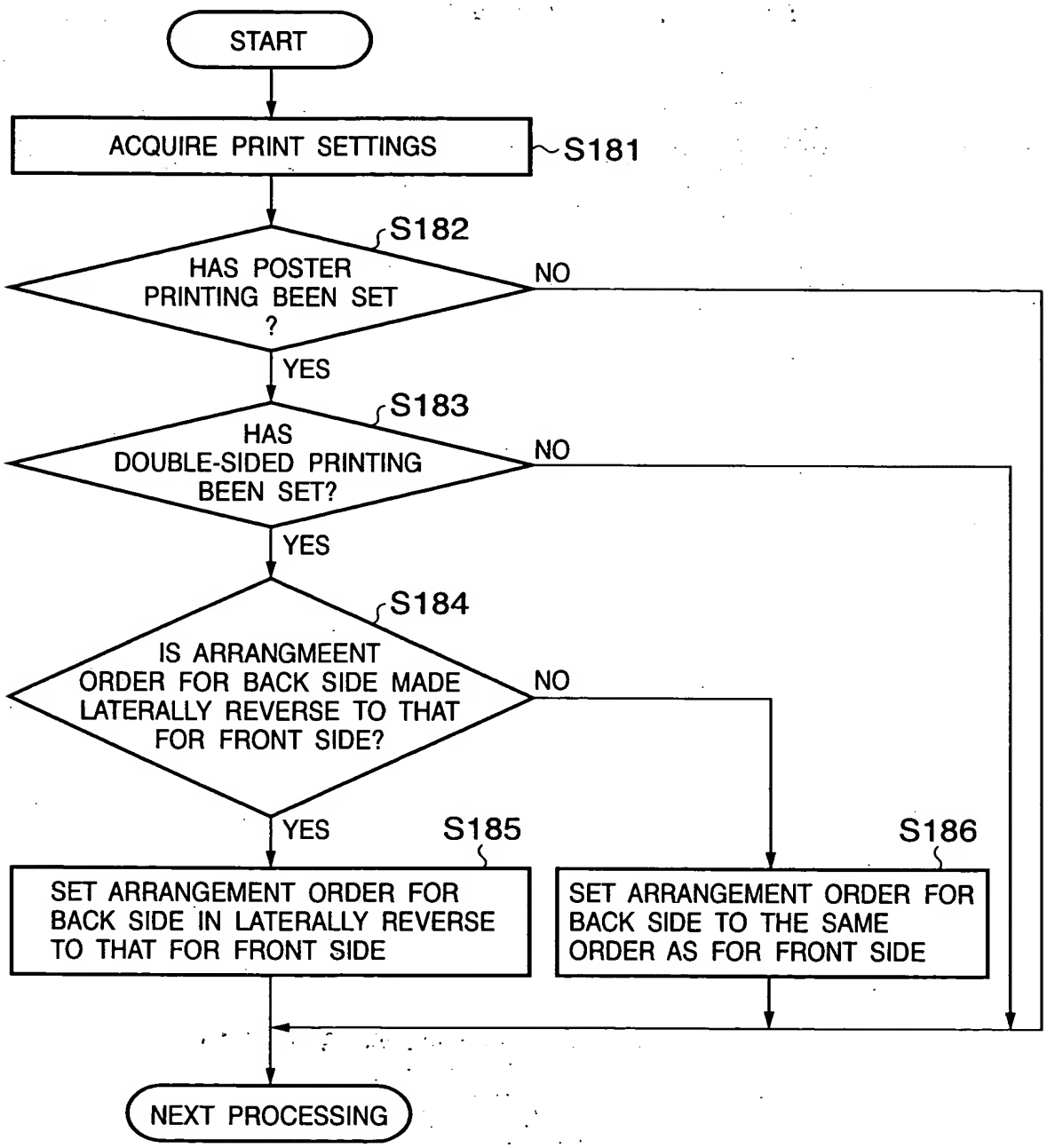

START
ACQUIRE PRINT SETTINGS
S181
S182
HAS POSTER PRINTING BEEN SET ?
NO
YES
S183
HAS DOUBLE-SIDED PRINTING BEEN SET?
NO
YES
S184
IS ARRANGMEENT ORDER FOR BACK SIDE MADE LATERALLY REVERSE TO THAT FOR FRONT SIDE?
NO
YES
S185
SET ARRANGEMENT ORDER FOR BACK SIDE IN LATERALLY REVERSE TO THAT FOR FRONT SIDE
S186
SET ARRANGEMENT ORDER FOR BACK SIDE TO THE SAME ORDER AS FOR FRONT SIDE
NEXT PROCESSING

FIG. 19

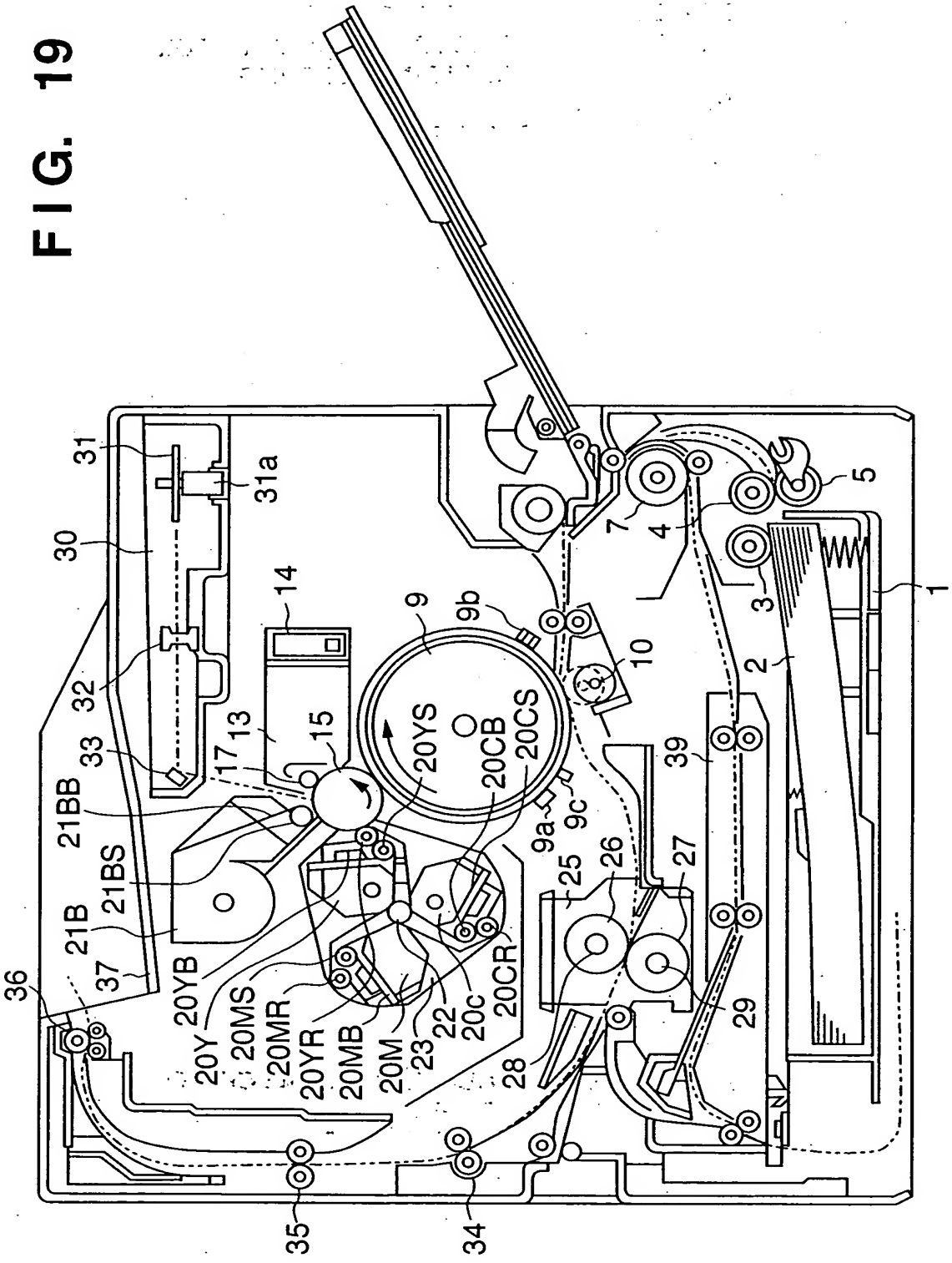
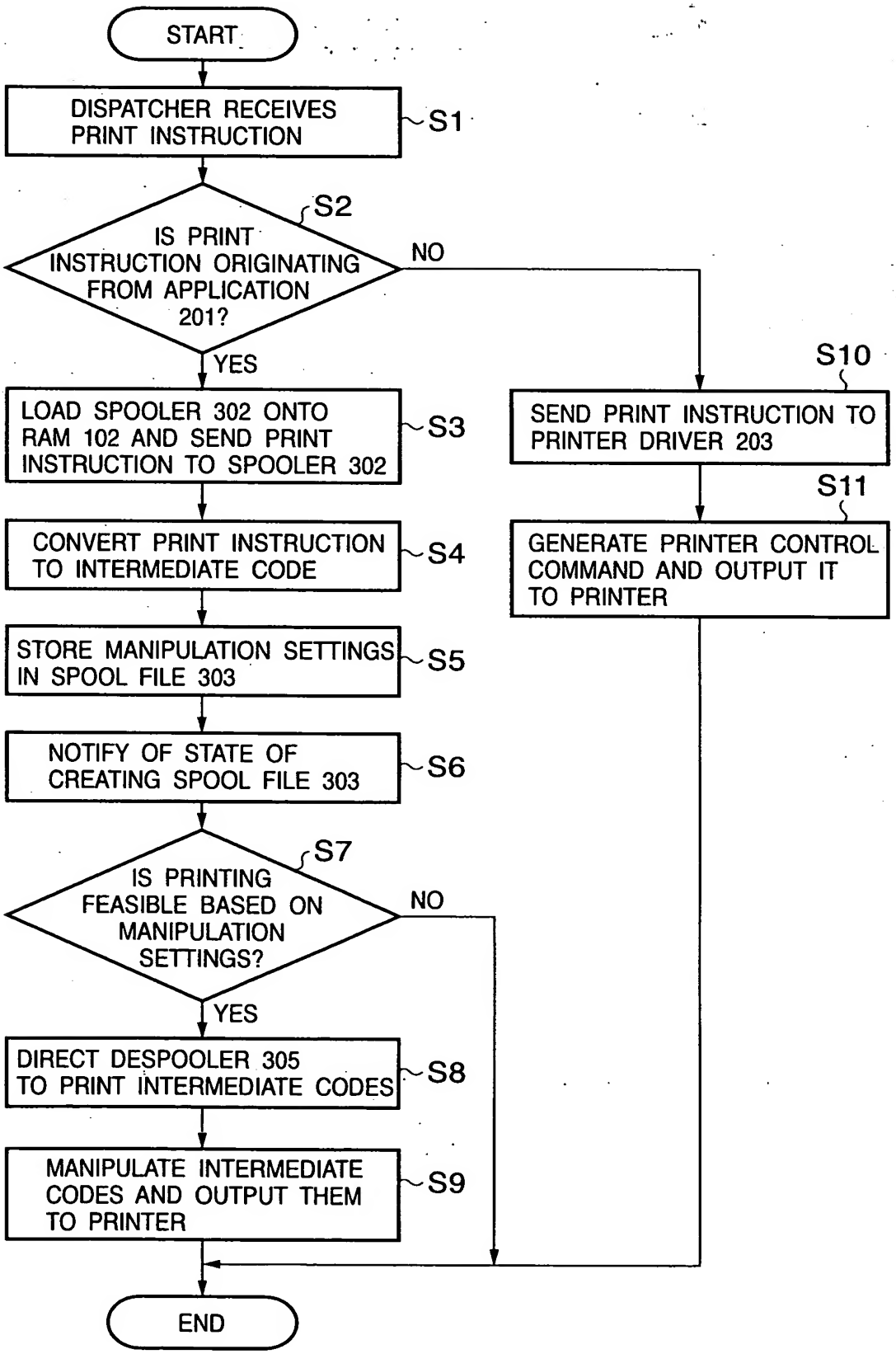

31
31a
30
14
9
9b
32
13
15
20YS
20CB
20CS
33
17
10
2
39
21BB
9a
9c
21BS
25
26
27
21B
37
20YB
20CR
36
20Y
20MS
20MR
20YR
20MB
20M
23
22
20c
28
29
35
34
5
7
4
3
1

FIG. 20


START
DISPATCHER RECEIVES PRINT INSTRUCTION
S1
S2
IS PRINT INSTRUCTION ORIGINATING FROM APPLICATION 201?
NO
YES
S10
SEND PRINT INSTRUCTION TO PRINTER DRIVER 203
S11
GENERATE PRINTER CONTROL COMMAND AND OUTPUT IT TO PRINTER
LOAD SPOOLER 302 ONTO RAM 102 AND SEND PRINT INSTRUCTION TO SPOOLER 302
S3
CONVERT PRINT INSTRUCTION TO INTERMEDIATE CODE
S4
STORE MANIPULATION SETTINGS IN SPOOL FILE 303
S5
NOTIFY OF STATE OF CREATING SPOOL FILE 303
S6
S7
IS PRINTING FEASIBLE BASED ON MANIPULATION SETTINGS?
NO
YES
DIRECT DESPOOLER 305 TO PRINT INTERMEDIATE CODES
S8
MANIPULATE INTERMEDIATE CODES AND OUTPUT THEM TO PRINTER
S9
END